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Self-diffusion of polystyrene in solution 1. Experimental results of the NMR pulsed field gradient technique

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Abstract

We report self-diffusion measurements for polystyrene dissolved in benzene and chloroform using the NMR pulsed field gradient technique. The observed echo attenuations point to dynamic exchange processes or cluster formation in the semidilute solution. The experimental results are compared with theoretical predictions from the reptation mechanism and the 'blob' theory. There is qualitative agreement, but a more comprehensive analysis of the data and results from experiments with polymer mixtures show that polymer self diffusion in semidilute solutions cannot be explained by the reptation mechanism in its simple form. © 1988 Steinkopff.

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Keywords

NMR pulsed field gradient technique, polystyrene solutions, Self diffusion, semidilute solution